Non-Native Species

Like many other parks in the southeastern United States, Canaveral National Seashore (CANA) faces a serious threat from the invasion of exotic plants. The problem species here are **Brazilian pepper** (*Schinus terebinthifolius*), **Australian pine** (*Casuarina equisetifolia*) and more recently, **cogon grass** (*Imperata cylindrica*). These species form dense stands displacing all other plant species. While Brazilian pepper does produce prodigious amounts of berries that are readily eaten (and therefore spread) by native birds, the disruption of native plant communities more than outweighs the good. Brazilian pepper has spread to almost all disturbed areas of CANA, especially along roadways and on dikes encircling Mosquito Lagoon. Over the last three years, CANA has obtained almost $500,000 through a cooperative program between the National Park Service and Florida Department of Environmental Protection to treat Brazilian pepper and Australian pine over several thousand acres of the park. Garlon 4 herbicide is applied directly to each plant's stem, utilizing a backpack sprayer and wand, without affecting adjacent plants. Dead plants are left standing to minimize disturbance. The results are very encouraging; however, follow-up treatments must be made on a regular basis to remove new seedlings. **Melaleuca** (*Melaleuca quinquenervia*), a species which has severely impacted the Everglades, while not yet seen in the park, has been found in the wildlife refuge less than 5 miles away. The refuge is attempting to eradicate it before it can spread any further.

Exotic animals are also a threat to park resources. The **feral hog** (*Sus scrofa*) has become established in CANA, particularly in the southern half , and is seriously disrupting native vegetation. A voracious snake eater, it may also be affecting native snakes, including the protected eastern indigo snake (*Drymarchon coraisi couperi*). An ominous note is the major damage it has caused to sea turtle nests on beaches south of CANA. One hog can destroy as many as a dozen nests a night. For the past several years, three trappers have been removing hogs from much of the park and refuge. In a recent year, 2500 hogs were taken without any apparent dent in the population. The park and refuge must combine resources and explore additional ways to combat this serious menace. In 1998, CANA obtained funds to construct twenty portable hog traps of a new design.

Another non-native animal impacting the park's wildlife is the **feral cat** (*Felis catus*). During a two-year survey to determine the distribution of the federally protected southeastern beach mouse within CANA, no beach mice were captured in the northernmost section of the park. The likely cause for this absence is feral cats. People occasionally release unwanted cats into the park and animals stray over from the adjacent community of Bethune Beach. Feral cats are also undoubtedly impacting other native animals, such as the northern bobwhite (*Colinus virginianus*). Recent studies have shown the devastating effect that cats can have on bird populations in suburban areas. It is critical to educate the public about spaying and restricting cats from roaming free in natural areas.

The **nine-banded armadillo** (*Dasypus novemcinctus*) is a comical little fellow often seen foraging along park roadsides. It and the alligator are probably CANA's most photographed

animals. While Floridians have become accustomed to it's presence, it is actually a non-native species that has arrived from the southwestern United States. It sometimes can be a pest by rooting in archeological sites and raiding sea turtle nests.

The **roof rat** (*Rattus rattus*) has been trapped on the dunes during beach mouse surveys. It may be obtaining food from trash containers located at the parking areas, although it appears capable of surviving on natural food sources. Its impact on native species is unknown.
A number of potentially harmful amphibian and reptiles are expanding their ranges into Florida from tropical areas throughout the world. The park, adjacent Merritt Island National Wildlife Refuge and Kennedy Space Center are attempting to detect these invaders through a long-term herpetofaunal monitoring program. The impact of the exotic **brown anole** (*Anole sagrei*) on the green anole (*Anole carolinensis*) has recently been studied on select spoil islands in Mosquito Lagoon. The brown anole eats young green anoles and forces green adults into submarginal habitat higher in woody vegetation. Food is less abundant at that level and the anoles are more visible to predators. Other amphibian and reptile invaders include the Indo-Pacific gecko (*Hemidactylus garnotii*), Mediterranean gecko (*Hemidactylus turcicus*), and greenhouse frog (*Eleutherodactylus planirostris*).

An invisible, but potentially devastating invader, is the bacterium *Mycoplasma agassizii* which causes **Upper Respiratory Tract Disease Syndrome** (URTDS) in the gopher tortoise. The tortoise is listed as a Species of Special Concern in Florida and, because so many other animals rely on its burrows for shelter, it is considered a "keystone" species. URTDS caused serious mortality in desert tortoise populations of the Southwest and has somehow made its way east to Florida. Trapping efforts in 1995 confirmed that the disease was present on Space Center lands and in the southern portion of CANA. The impact that URTDS will have on the gopher tortoise population of CANA and its dependent species is still unknown. In 2003, CANA will conduct a study to determine the survival rate of newly-born gopher tortoises.

Aquatic species are also invading Mosquito Lagoon, although to what degree is unknown. Potential invaders that have been seen elsewhere in Florida waters and could become serious threats to CANA's aquatic ecosystem are the **green mussel** (*Perna viridis*), which has greatly impacted shellfish populations on the gulf coast of Florida, and the **Australian spotted jellyfish** (*Phyllorhiza punctata*), which can reduce fish populations by filtering out all the fish eggs from three gallons of lagoon water a second or 260,000 gallons per day. The jellyfish has been documented south of CANA, in the Indian River Lagoon.